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NEW SPECIES AND COUNTRY RECORDS OF BRAZILIAN *CYCLOCEPHALA* (COLEOPTERA: SCARABAEIDAE: DYNASTINAE)

Ratcliffe, B. C., 1992. New species and country records of Brazilian *Cyclocephala* (Coleoptera: Scarabaeidae: Dynastinae). – Tijdschrift voor Entomologie 136: 179-190, figs. 1-34. [ISSN 0040-7496]. Published 1 December 1992.

Nine new species of *Cyclocephala* Latreille are described from Brazil: *C. amplitarsis, C. rondoniana, C. sarpedon,* and *C. schmitzorum* from Rondonia; *C. deltoides* from Para; and *C. iani, C. nodanotherwon, C. pseudoconfusa,* and *C. sarahae* from Amazonas. New country records for Brazil are given for *C. boulardi* Dechambre, *C. guianae* Endrödi, *C. longa* Endrödi, *C. munda* Kirsch, *C. ocellata* Burmeister, and *C. picipes* (Olivier). Finally, the female of *C. panthera* Dechambre is reported for the first time and briefly characterized.

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Key words. – Brazil, Neotropics, *Cyclocephala,* new species, new country records.

In this paper are described new species and records of *Cyclocephala* that I collected during my stay in Brazil from 1976-1978, from collecting trips taken in 1980 and 1991, and from specimens either given or loaned to me in the interim. Each new species has been correlated with the most recent key to the genus provided by Endrödi (1985) in order that the reader might know where they fall out in the key. Appropriate notations can then be made for future reference. The parameres of the males, diagnostic in virtually all cases, are illustrated and accompanied by photo habitus pictures or line drawings to clarify the descriptions of body morphology.

Several new country records are also listed. Although I and a few others have known of these occurrences for several years, they have never been formally placed into the literature. The purpose of listing these records is to provide an enhanced level of reliability concerning identification of taxa that fall outside of the previously published ranges.

Specimens have either been borrowed from or deposited in several collections. These collections are referred to by their four-letter acronyms as published in Arnett and Samuelson (1986) or as indicated here if not in Arnett and Samuelson:

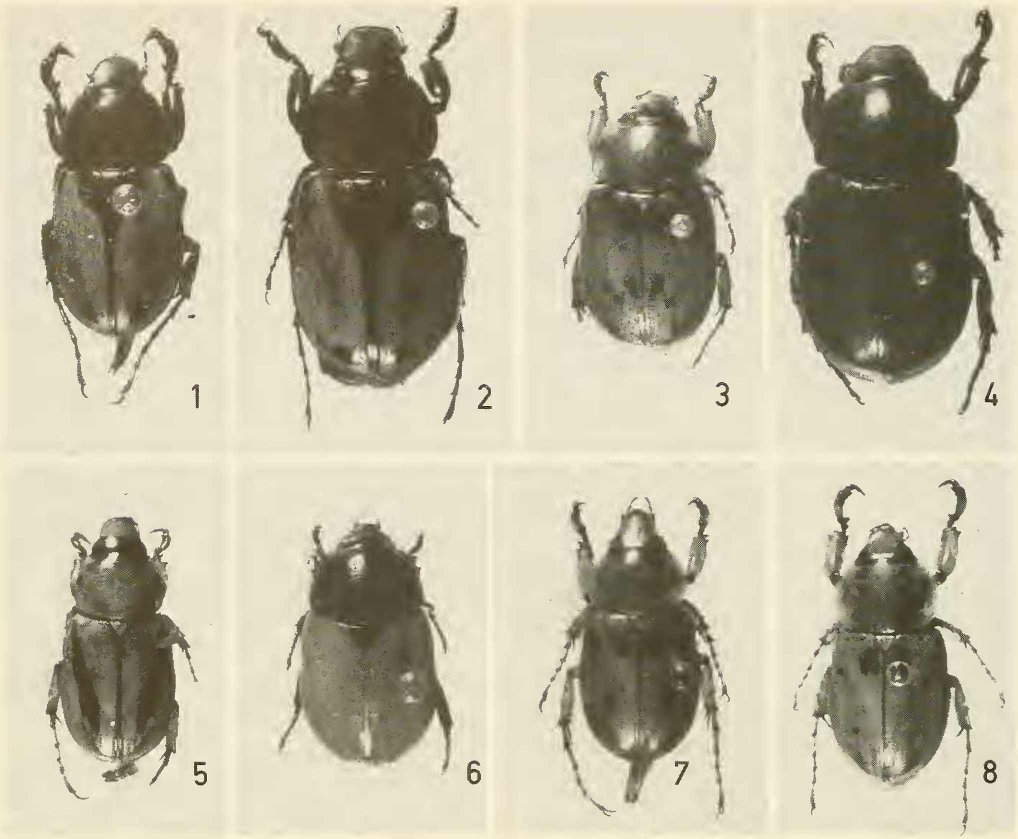
BCRC - Brett C. Ratcliffe, Lincoln, NE, USA; CASC - California Academy of Sciences, San Francisco, CA, USA; DERC - David E. Russell, Davis, CA, USA; HAHC - Henry and Anne Howden, Ottawa, Canada; INPA - Instituto Naçional de Pesquisas da Amazonia, Manaus, Brazil; LGBC - Larry G. Bezark, Sacramento, CA, USA; MAMC - Miguel A. Morón, Xalapa, Mexico; MZSP - Museo de Zoologia da Universidade de São Paulo, Brazil; PKLC - Paul K. Lago, University, MI, USA; UCDC - University of California, Davis, CA, USA; UNSM - University of Nebraska State Museum, Lincoln, NE, USA; USNM - U.S. National Museum, Washington, D. C., USA.

Cyclocephala amplitarsis sp. n.
(figs. 1, 9-12)

Type material. – Holotype ♂, allotype ♀, and eight paratypes labelled: 'BRAZIL: Rondonia, 62 km S. Ariquemes, Faz. Rancho Grande, 10° 32′ S, 62° 48′ W, XI-11-22-1991, B. C. Ratcliffe, taken at light;' 12 paratypes with same data except collected by L. G. Bezark and D. E. Russell; 4 paratypes with same data except 25.xi.1991, S. L. Heydon, Hg-vapor light; 5 additional paratypes with same data except dates of 27-xi-1991 (2), 29-xi-1991 (1), 4-xii-1991 (1), 5-xii-1991 (1); 1 paratype labelled BRASIL: Rondonia, Porto Velho, BR319, km 866, 28-1-1980, Jorge Arias, C.D.C., 6-M (eters); 1 paratype labelled BRASIL: Mato Grosso, Reserva Humboldt, 10° 11′ S, 59° 48′ W, 13-19-VII-1977, B. C. Ratcliffe, taken at light. Holotype and allotype deposited at UNSM. Paratypes deposited at MZSP, CASC, USNM, UNSM, UCDC, DERC, LGBC, and BCRC.

Description

Male holotype (fig. 1). – Length 12.9 mm; width across humeri 5.5 mm. Colour of head, pronotum, scutellum, pygidium, venter, and legs black; elytra testaceous with all margins, spots on humeral and apical umbones, and triangular area behind scutellum black.



Figs. 1-8. *Cyclocephala* spp., habitus of males. – 1, *C. amplitarsis*; 2, *C. deltoides*; 3, *C. iani*; 4, *C. nodanotherwon*; 5, *C. rondoniana*; 6, *C. sarahae*; 7, *C. sarpedon*; 8, *C. schmitzorum.*

Head: Surface moderately densely punctate; punctures on frons and basal half of clypeus small, punctures on apical half of clypeus minute and denser. Clypeus (fig. 9) with sides weakly converging, apex broadly truncate, narrowly reflexed. Interocular width 3.3 transverse eye diameters. Antenna with 10 segments, club subequal to segments 2-7.

Pronotum: Surface with punctation similar to that of frons. Base lacking marginal line. Prosternal process only moderate in length, obtusely rounded at apex.

Elytra: Surface minutely alutaceous, moderately densely punctate; punctures moderately large, shallow, with double rows on disc. Sparse, minute, pale setae present, especially in posterior half.

Pygidium: Surface completely, finely rugulose with sparse, minute, pale setae. In lateral view, surface weakly convex.

Legs: Foretibia bidentate, both teeth close to each other at apex of tibia. Foretarsus (fig. 10) with segment 4 expanded ventrally as a strong tooth; segment 5 greatly expanded for entire length, wider at base than at apex. Claw immensely expanded, subtriangular, apex entire. Posterior tarsus almost twice as long as posterior tibia.

Parameres: figs. 11-12.

Female allotype. – Length 12.6 mm; width across humeri 5.6 mm. As holotype except in the following respects: Head: Clypeus in apical half with punctures not smaller, instead subequal in size to those on rest of head. Elytra: Lateral margin slightly diluted at about middle and with strong, protuberant knob at about level of apical umbone. Pygidium nearly flat in lateral view. Legs: Foretibia tridentate, teeth equally spaced from one another. Foretarsi and claw not enlarged.

Variation. – Males (18 paratypes). Length 12.3-14.0 mm; width across humeri 5.5-5.9 mm. The paratypes do not differ significantly from the holotype.

Females (14 paratypes). – Length 12.1-13.5 mm; width across humeri 5.4-6.1 mm. The females are also remarkably similar to the allotype with no significant differences noted.

Distribution

Cyclocephala amplitarsis is known from primary lowland rainforests in central Rondonia and northwestern Mato Grosso in Brazil. All specimens were taken at lights, and one (collected by Jorge Arias) was taken at a CDC light trap suspended at a height of 6 m.

Remarks

The enlarged foretarsi and claws of *C. amplitarsis* bring to mind *C. longimana* Dechambre, 1980 and *C. tarsalis* Dechambre, 1979, but those species have a bordered pronotum as well as many other different character states. *Cyclocephala amplitarsis* will key only so far as couplet 239 (242) in Endrödi (1985) (if the surface is considered setose, couplet 221/272) where neither choice concerning foretibial teeth fits the clearly bidentate state of this species.

If the elytra are considered to have short setae (latter half of couplet 221/272), then *C. amplitarsis* will go as far as couplet 328/337 where neither choice (concerning tridentate foretibia) is acceptable.

Etymology

From the Latin *amplus*, meaning large and the Greek *tarsor*, meaning flat of the foot; large foot, a noun in apposition in reference to the greatly swollen foretarsi of the male.

Cyclocephala boulardi Dechambre

This species was described from Surinam, and the following *new country record* from Brazil is not surprising in view of the relative affinities between the fauna of northern Brazil and the Guianas.

Brazil: Amazonas, Reserva Ducke, 26 km NE Manaus, 1-xii-1976, B. C. Ratcliffe, at UV light (1 male in BCRC).

Cyclocephala deltoides sp. n.
(figs. 2, 13-15)

Type material. – Holotype ♂ labelled 'BRASIL: Pará, Urua, 65 km SW Itaituba on BR230, X-12-15-1977, B. C. Ratcliffe, habitat: tropical evergreen forest, collected at light.' (UNSM).

Description

Male holotype (fig. 2). – Length 18.0 mm; width across humeri 8.0 mm. Colour of clypeus, pronotum, scutellum, pygidium, legs, and venter piceous; frons black as well as all elytral margins (expanded into broad triangle behind scutellum), elongate spots on humeral and apical umbones, and punctures on elytra. Remainder of elytra testaceous.

Head: Frons and base of clypeus moderately densely punctate; punctures moderate in size. Frontoclypeal suture a distinctly impressed, biarcuate line. Clypeus in apical 2/3 finely and completely roughened; sides barely converging to very broad, truncate apex, apex reflexed. Interocular width 3.0 transverse eye diameters. Antenna 10-segmented, club subequal in length to segments 2-7.

Pronotum: Surface moderately punctate on disc, becoming a little denser on sides; punctures small on disc, becoming moderate in size on sides. Base lacking marginal line. Prosternal process short, mostly obscured by brush of long setae.

Elytra: Surface with moderate to large punctures in striate rows, double rows of punctures distinct; surface, especially posterior half, with minute, moderately dense, reddish brown setae. Pygidium: Surface coarsely shagreened, setigerous; setae reddish brown, minute at base, short on disc and moderately long near apex. In lateral view, surface evenly convex.

Legs: Foretibia bidentate, both teeth close to one another near apex of tibia. Foretarsus with segment 5 (claw segment) greatly expanded for its entire length (fig. 13), wider at base than at apex. Claw of foretarsus enlarged, apex entire. Posterior tarsus about twice as long as posterior tibia.

Parameres: figs. 14-15.

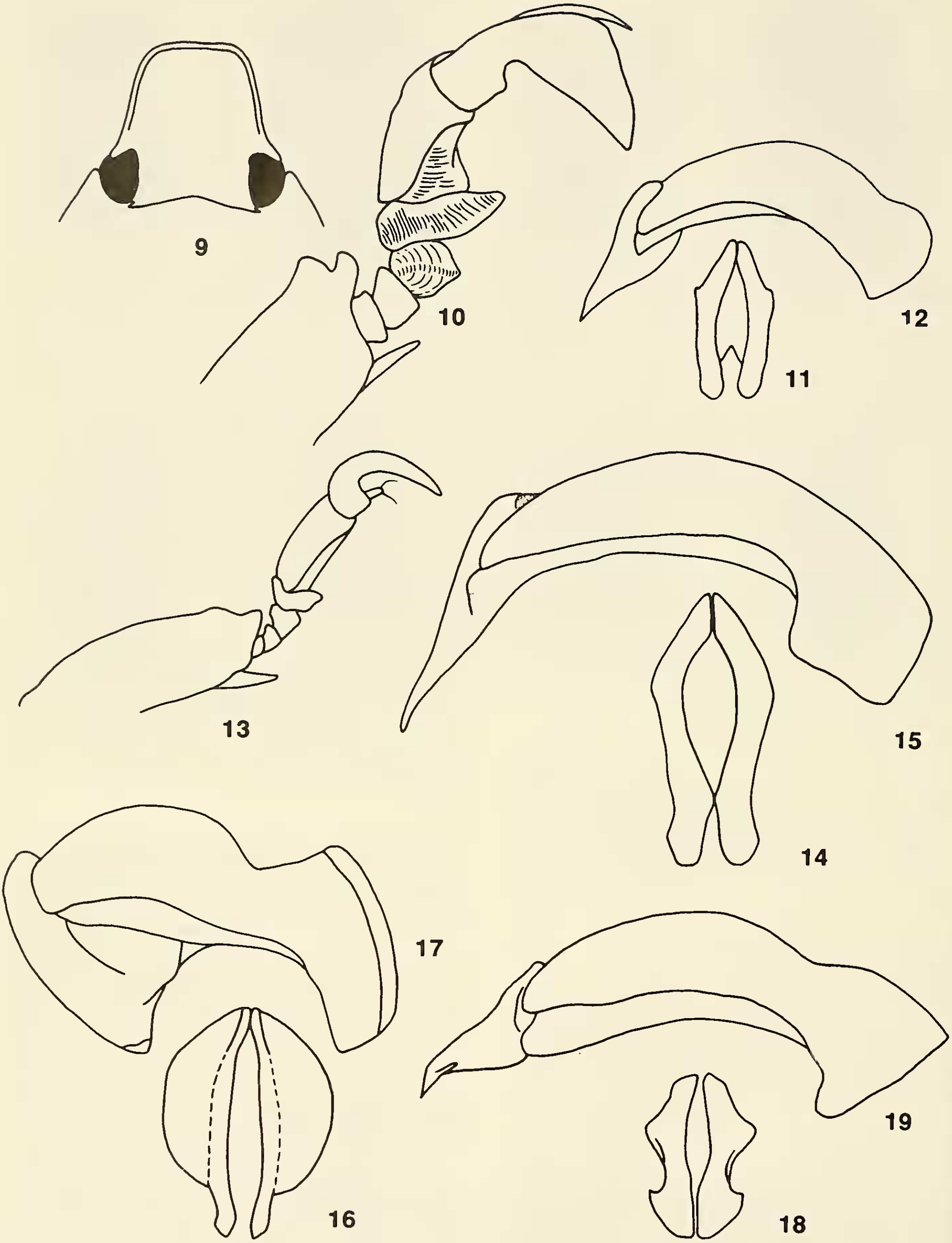
Distribution

Cyclocephala deltoides is known only from the Urua locality in Brazil's Amazon National Park, which was just being established in 1977. It was taken at lights on a road cut in primary lowland rainforest near the end of dry season.

Remarks

Like *Cyclocephala amplitarsis* described elsewhere in this paper, the enlarged foretarsi also resemble *C. longimana* Dechambre and *C. tarsalis* Dechambre, but those species have a margined base of the pronotum as well as other different character states. *Cyclocephala deltoides* most closely resembles *C. amplitarsis* but differs from it in greater body size, smaller size and different form of the foretarsal claw in males, different form to the parameres, tricoloured body (black, piceous, testaceous), larger eyes, longer and denser pygidial setae, and with larger and more distinctive elytral punctures.

If the elytra are considered setose (Endrödi's couplet 221/272), then *C. deltoides* will key only to couplet 239/242 where neither choice of foretibial teeth works. If the choice is made for the second part of couplet 221/272 (species with very short elytral setae), then this species keys to couplet 328/337 where neither choice (concerning tridentate foretibia) works.



Figs. 9-12. *Cyclocephala amplitarsis*. – 9, dorsal view of head; 10, dorsal view of left foretibia and tarsus; 11, 12, caudal and lateral views of parameres; Figs. 13-15. *C. deltoides*. – 13, dorsal view of left foretibia and tarsus; 14, 15, caudal and lateral views of parameres; Figs. 16-17. *C. iani*, caudal and lateral views of parameres; Figs. 18-19. *C. nodanotherwon*, caudal and lateral views of parameres.

Etymology

From the Greek *delta* meaning shaped like a delta or triangle; so named in reference to the large, black, postscutellar mark on the elytra.

Cyclocephala guianae Endrödi

Endrödi described *Cyclocephala guianae* from French Guiana. The records listed below are a *new country record* for Brazil.

Brazil: Amazonas, Reserva Ducke, 26 km NE Manaus, 14-ii-1977, B. C. Ratcliffe, taken at black light (3 males and 2 females in BCRC , 1 female at UNSM); same data but 14-i-1978 and A. Soares collector (1 male at UNSM); same data but 18-vi-1976 and A. Luna Dias collector (1 male at INPA, 1 male at UNSM); same data but 14-i-1978 and L. P. Albuquerque collector (1 female at INPA). Amazonas, 60 km N. Manaus, ZF3, km 23, 9-12-vi-1980, B. C. Ratcliffe (1 male and 2 females in BCRC).

Cyclocephala iani sp. n.

(figs. 3, 16-17)

Type material. – Holotype ♂ and allotype ♀ labelled 'BRASIL: Amazonas, Reserva Campinas, 60 mi N Manaus, II-10-1977, W. W. Benson, ex: *Annona nitida*.' Types deposited at UNSM.

Description

Male holotype (fig. 3). – Length 16.1 mm; width across humeri 8.0 mm. Colour testaceous with black frons and elytral markings; elytral marks consist of large postscutellar spot, small spot just mesad of humeral umbone, a smaller spot behind humerus, and a short, transverse zigzag band just behind middle; clypeus, pygidium, legs, and venter piceous.

Head: Surface of frons moderately densely punctate, punctures moderately large; clypeus densely punctate, punctures mostly moderate in size, surface becoming rugose in narrow band at apex. Clypeus with apex nearly semicircular, margins narrowly reflexed. Interocular width 2.4 transverse eye diameters. Antenna with 10 segments, club subequal in length to segments 2-7.

Pronotum: Surface with disc sparsely punctate, punctures small; sides with punctures moderately dense and moderately large, subequal in size to those of frons. Base without marginal line. Prosternal process long, posterior face at apex flattened.

Elytra: Surface finely alutaceous, moderately densely punctate; punctures large, shallow, double rows weak. Minute, testaceous setae present; setae moderate in density, most apparent on posterior half.

Pygidium: Surface sparsely punctate in centre, becoming denser on sides and rugose in lateral angles; punctures on centre small, becoming large on sides, setigerous; setae minute, testaceous. In lateral view, convexity moderate.

Legs: Foretibia tridentate, basal tooth small and greatly removed from other teeth. Foretarsus enlarged, larger claw with apex finely cleft. Posterior tarsus slightly longer than posterior tibia.

Parameres: figs. 16-17.

Female allotype. – Length 16.5 mm; width across humeri 8.1 mm. As holotype except in the following respects: Head: Frons with punctures sparser, instead only moderate in density; clypeus with surface more generally roughened so punctures not as distinct. Elytra: Lateral margin just behind middle weakly expanded. Pygidium: Surface slightly more flattened, small setae greatly reduced in size and number, barely discernible. Legs: Foretarsi not enlarged.

Distribution

Cyclocephala iani is known only from Reserva Campinas (Instituto Naçional de Pesquisas da Amazonia) north of Manaus. This region is characterized by lowland rainforest mixed with islands and peninsulas of white sand soils (campinas) and associated low vegetation (campinarana). This soil/ vegetation type, known as campinas amazonicas (Anderson et al. 1975), is where the reserve takes its name.

Remarks

In Endrödi (1985), both sexes of *C. iani* will key to *C. undata* (Olivier) in their respective parts of the *Cyclocephala* key (329/330 for males, 297/298 for females). The significant differences between them, however, clearly indicate they are not conspecific. The differences are primarily in the sculpturing of the clypeus, frons, and pronotum and especially in the form of the parameres of the male. The parameres, in fact, most closely resemble those of *C. picipes* (Olivier), but other characters of clypeal shape, surface sculpturing, and colour patterns separate the two.

Etymology

I am pleased to name this species after my youngest son, Ian, who has so faithfully assisted me in the field while collecting beetles.

Cyclocephala longa Endrödi

Endrödi (1963) described this species from Bolivia. The locality data listed below, actually just across the border from Bolivia, is a *new country record.*

Brazil, Rio Branco, 25-vi-1962, Hawarth collector (1 male in BCRC).

Cyclocephala munda Kirsch

Although widely scattered over northern South America (Surinam, Colombia, Peru; Endrödi 1985), *C. munda* has not been recorded from Brazil. The following is a *new country record.*

Brazil: Amazonas, Reserva Campinas, 60 mi N Manaus, 14-i-1977, B. C. Ratcliffe (1 male in BCRC); Amazonas, 15 km SE Barcelos, 14-i-1978, N.D. Penny (1 male in BCRC).

Cyclocephala nodanotherwon sp. n.
(figs. 4, 18-19)

Type material. – Holotype ♂ and allotype ♀ labelled 'BRAZIL: Amazonas, Lago Anama, 160 km WSW Manaus, XI-1981, R. Best.' Single paratype with same data but date of 1-v-1980. Holotype and allotype deposited at UNSM; paratype deposited in BCRC .

Description

Male holotype (fig. 4). – Length 15.6 mm; width across humeri 7.9 mm. Colour reddish brown except for black, triangular area mesad of each eye on frons.

Head: Surface finely alutaceous, moderately punctate; punctures moderate in size, shallow. Frontoclypeal suture distinct, weakly arcuate. Clypeus with apex broadly and deeply emarginate, narrowly reflexed. Interocular width 4.6 transverse eye diameters. Antenna 10-segmented, club subequal to segments 2-7.

Pronotum: Surface finely alutaceous, moderately punctate, punctures becoming denser on sides; punctures moderate in size, shallow, becoming a little larger and deeper on sides. Base without marginal line. Prosternal process long, apex flattened in posterior half.

Elytra: Surface finely alutaceous, moderately densely punctate; punctures moderately large, shallow, with 2 pair of double rows on disc; punctures in posterior fourth with minute setae.

Pygidium: Surface moderately densely punctate; punctures mostly large, shallow, setigerous; setae pale, minute. In lateral view, surface evenly convex.

Legs: Foretibia tridentate, basal tooth very small, well separated from other teeth. Foretarsus with 1 claw strongly enlarged, apex finely cleft, smaller ramus not widely diverging. Posterior tarsus about 1/3 longer than posterior tibia.

Parameres: figs. 18-19.

Female allotype. – Length 15.8 mm; width across humeri 7.9 mm. As holotype except in the following respects: Colour of elytra light reddish brown. Head: Clypeus with apex a little less emarginate. Pronotum: Punctures sparse on disc to moderate in density on sides. Elytra: Discal rows of punctures not distinct. Sparse setae near apices long. Lateral margin slightly expanded just behind middle with strongly expanded lateral flange just behind this. Pygidium: Sparse setae long. Convexity, in lateral view, weak. Legs: Claw of foretarsus not enlarged.

Variation. – Male (1 paratype). Length 16.2 mm; width across humeri 8.2 mm. Head: Surface a little more densely punctate. Clypeus with apex a little less emarginate. Elytra: Setae near apices short, distinct. Pygidium: Setae moderately dense, short to moderately.long.

Distribution

Cyclocephala nodanotherwon is known only from Lake Anama WSW of Manaus.

Remarks

This species will key to either couplet 298 (*C. gravis* Bates) or 306 (*C. munda* Kirsch) in Endrödi (1985) depending on the interpretation of the degree of punctation on the pronotum (couplet 299). In either case, however, neither the parameres, vestiture, or surface sculpturing conforms to that of *C. nodanotherwon.*

The examples of this new species were collected by Robin Best (deceased), a colleague of mine at Brazil's National Institute of Amazonian Research (INPA), while conducting research on manatees at Lago Anama.

Etymology

This new species name is the result of an arbitrary combination of letters (hence, treated as an indeclinable noun) and results in a species name not inappropriate in such a large genus.

Cyclocephala ocellata Burmeister

Known previously from Ecuador and Peru (Endrödi 1985) and French Guiana (Dechambre, 1979), the following represents a *new country record.*

Brazil: Amazonas, 46 km N Manaus, 1-29-viii-1979, H. M. Savage (1 female in BCRC).

Cyclocephala panthera Dechambre

Dechambre (1979) described this distinctively marked species from a single male specimen taken in Para State, Brazil. I report here ten additional specimens from the Canadian National Collection of Insects that verify the valid status of Dechambre's species. The specimens (six males, three females) are labelled BRAZIL: Distrito Federal, Estacion Florestal Cabeca do Veado, 1100 m, 13-27 Oct. 1971, E. G., I. & E. A. Munroe.

The previously unknown females have the elytral margin in the posterior third slightly (but distinctly) thickened. In Endrödi's (1985) key to female *Cyclocephala*, it will key as far as couplet 261. Couplet 262 should be modified as follows:

262 (263) Surface bare.
262a. Head and pronotum piceous, elytra with variable pattern (Figs. 270, 273). Guyana, Peru, Brazil (Amazonas), Bolivia............. ....*pugnax* Arrow
262 b. Head with frons only black, pronotum and elytra with distinct pattern. Central Brazil......................*panthera* Dechambre

Cyclocephala picipes (Olivier)

Previously known from French Guiana (Endrödi 1985), the following constitute a *new country record.*

Brazil: Amazonas, Reserva Campinas, 60 km N Manaus, 15-i-1977 (1 male) and 18-i-1978 (1 female), B. C. Ratcliffe (both in BCRC).

Cyclocephala pseudoconfusa sp. n.
(figs. 20-24)

Type material. – Holotype ♂, allotype ♀, and two paratypes labelled 'BRASIL: Amazonas, Reserva Campinas, 60 km N Manaus, XI-22-1976, B. C. Ratcliffe.' Holotype and allotype deposited at UNSM. Paratypes deposited in BCRC .

Description

Male holotype. – Length 9.4 mm; width across humeri 4.8 mm. Body form short, oval. Colour testaceous except for black frons.

Head: Surface of frons coarsely alutaceous with moderately dense and moderately large punctures. Clypeus with similar punctation mostly obscured by surface roughness; sides subparallel, apex broadly truncate, narrowly reflexed (fig. 20). Interocular width 2.15 transverse eye diameters. Antenna 10-segmented, club subequal to segments 2-7.

Pronotum: Surface finely alutaceous with punctures moderate in density; punctures moderate in size along midline, becoming moderately large on disc and sides. Base without marginal bead. Prosternal process long, posterior face at apex flattened.

Elytra: Surface finely alutaceous with moderate to large, shallow punctures, double rows of punctures almost indistinct.

Pygidium: Surface densely punctate, punctures small. In lateral view, pygidium evenly convex.

Legs: Foretibia (fig. 21) tridentate, basal tooth slightly removed from other teeth. Claw of foretarsus with apex deeply split (fig. 22). Posterior tarsus subequal in length to posterior tibia.

Parameres: figs. 23-24.

Female allotype. – Length 10.6 mm; width across humeri 5.2 mm. As holotype except in the following respects: Elytra: Lateral margin slightly expanded just behind middle. Pygidium: Surface weakly convex, nearly flat. Legs: Foretarsus with claw not enlarged.

Variation. – Males (2 paratypes). Length 11.1-12.0 mm; width across humeri 5.5-5.8 mm. The paratypes do not differ appreciably from the holotype.

Distribution

Cyclocephala pseudoconfusa is known only from the type locality north of Manaus. This is an area of white sand soils (campinas) that occur in peninsulas or patches. This particular soil/vegetation type was characterized by Anderson et al. (1975).

Remarks

This small, oval species will key as far as couplet 405 (404) in Endrödi (1985) which is *C. confusa* Endrödi. While fitting in all respects to the characters listed in the couplet, the parameres are vastly different. The same can also be said for the similarity in external characters with *C. perconfusa* Dechambre, 1992. These three species should cluster together in any key and be separable only by the form of the parameres in the males and the presence or absence of an expanded elytral margin in females (margin simple in *C. perconfusa*, with slight expansion in *C. confusa* and *C. pseudoconfusa*).

Etymology

From the Greek *pseudes*, meaning false, i.e., the false *C. confusa.*

Cyclocephala rondoniana sp. n.
(figs. 5, 25-26)

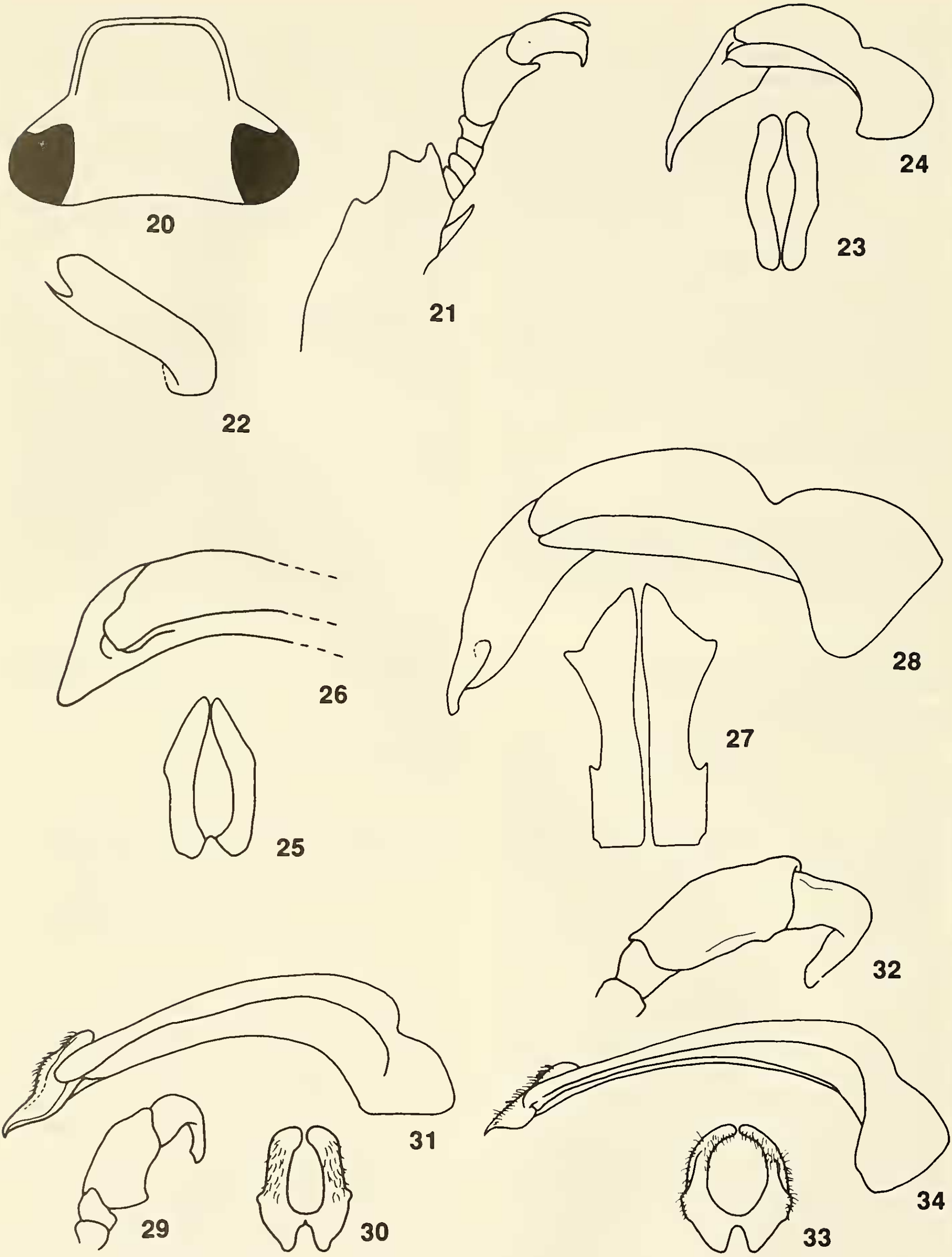
Type material. – Holotype ♂, allotype ♀, and one paratype labelled 'BRASIL: Rondonia, 62 km S. Ariquemes, Faz. Rancho Grande, 10° 32′ S, 62° 48′ W, XI-11-22-1991, B. C. Ratcliffe, collected at light.' Additional paratype with same data and date of 12-22-XI-1991 and collected by L. G. Bezark and D. E. Russell, Hg vapor light. Holotype and allotype deposited at UNSM. Paratypes deposited in LGBC and BCRC.

Description

Male holotype (fig. 5). – Length 9.1 mm; width across humeri 4.0 mm. Colour testaceous except for black frons, small spot on side of pronotum at middle, oblique elytral vitta, sutural margin of elytra, and base of elytra for short distance either side of scutellum.

Head: Surface finely alutaceous, moderately punctate; punctures small, becoming slightly less distinct toward apex of clypeus. Frontoclypeal suture impressed, arcuate. Clypeus with anterior angles rounded, apex truncate, margins thickened and reflexed. Interocular width 3.0 transverse eye diameters. Antenna with 10 segments, club subequal in length to segments 2-7.

Pronotum: Surface finely and weakly alutaceous, sparsely punctate on disc, punctures small; punctures



Figs. 20-24. *Cyclocephala pseudoconfusa*. – 20, dorsal view of head; 21, dorsal view of left foretibia and tarsus; 22, large ramus of left foreclaw; 23, 24, caudal and lateral views of parameres; Figs. 25-26, *C. rondoniana*, caudal and lateral views of parameres; Figs. 27-28, *C. sarahae*, caudal and lateral views of parameres; Figs. 29-31, *C. sarpedon*. – 29, dorsal view of left foretarsus; 30, 31, caudal and lateral views of parameres; Figs. 32-34. *C. schmitzorum*. – 32, dorsal view of left foretarsus; 33, 34, caudal and lateral views of parameres.

becoming slightly larger and denser on sides. Base with complete marginal line. Prosternal process short, apex simply rounded.

Elytra: Surface finely alutaceous, punctate; punctures moderate in density, small, shallow (often indistinct), some setigerous; setae sparse, small, stout, reddish brown. Double rows not evident.

Pygidium: Surface minutely shagreened, moderately punctate; punctures small, shallow to indistinct. Sparse setae present at base. In lateral view, surface regularly convex.

Legs: Foretibia tridentate, basal tooth simply a weak angulation, teeth subequally spaced. Foretarsus enlarged, large claw with apex entire. Posterior tarsus twice as long as posterior tibia.

Parameres: figs. 25-26.

Female allotype. – Length 8.7 mm; width across humeri 3.8 mm. As holotype except in the following respects: The black, elytral vitta reduced to 2 weakly connected, elongate spots. Head: Punctures strong and distinct over entire surface. Elytra: Punctures distinct. Margin slightly expanded at middle. Pygidium: In lateral view, surface nearly flat. Legs: Foretibia distinctly tridentate, teeth subequally spaced. Foretarsus and claw not enlarged.

Variation. – Females (2). Length 8.8 mm each; width across humeri 3.9 mm each. Except for the elytral markings being reduced to 2 small, separate spots, the females do not vary significantly from the allotype.

Distribution

Cyclocephala rondoniana is known only from the lowland rainforests on the Schmitz farm in Rondonia, Brazil.

Remarks

This species will key only so far as couplet 203 (202) in Endrödi (1985), after which nothing fits. The parameres appear closest to *C. quadripunctata* Höhne and *C. peruana* Endrödi, but those species lack a marginal line on the base of the pronotum. The oblique line on the elytra of the holotype is distinctive although this is reduced to two spots in the three females.

Etymology

The proper name of the territory of Rondonia has been converted into a noun in the genitive to indicate 'of Rondonia.'

Cyclocephala sarahae sp. n.
(figs. 6, 27-28)

Type material. – Holotype ♂, allotype ♀ and single paratype labelled 'BRASIL: Amazonas, Rio Demeni nr. equator, IV-10-1978, L. R. Lacey.' Holotype and allotype deposited at UNSM; paratype deposited in BCRC .

Description

Male holotype (fig. 6). – Length 11.4 mm; width across humeri 6.2 mm. Colour reddish brown except for black frons and testaceous elytra. Form short, oval.

Head: Surface of frons moderately punctate (more so in anterior half); punctures moderate in size, deep. Frontoclypeal suture distinct, sinuate. Clypeus with surface transversely rugopunctate; sides convergent to broad, subtruncate apex, apex reflexed. Interocular width 2.25 transverse eye diameters. Antenna 10-segmented, club a little longer than segments 2-7.

Pronotum: Surface moderately punctate, becoming densely punctate on sides; punctures deep, moderately large on disc, becoming large on sides. Posterior angles broadly rounded. Base without marginal line. Prosternal process long, flattened at apex on posterior half.

Elytra: Surface with large, shallow, umbilicate punctures; punctures not in distinct rows, surface between punctures minutely alutaceous and shining.

Pygidium: Surface similar to that of pronotum with moderately dense and moderately large punctures on disc, punctures becoming denser and larger on sides and base. In lateral view, pygidium strongly convex.

Legs: Foretibia tridentate, basal tooth distinctly removed from others. Foretarsus with 1 claw strongly enlarged, apex finely cleft; smaller ramus of claw not widely divergent from larger ramus. Posterior tarsus short, subequal in length to posterior tibia.

Parameres: figs. 27-28.

Female allotype. – Length 13.5 mm; width across humeri 7.4 mm. As holotype except in the following respects: Head: Frontoclypeal suture broader, deeper. Clypeus with surface more coarsely rugopunctate. Elytra: Lateral margin barely expanded at about middle. Pygidium: Surface densely punctate on disc, becoming rugopunctate on base and sides. Convexity weak. Foretarsus with claw not enlarged.

Variation. – Male (1 paratype). Length 10.3 mm; width across humeri 5.6 mm. The single paratype does not differ appreciably from the holotype.

Distribution

Cyclocephala sarahae is known only from the 'type locality' on the Rio Demini north of Barcelos (a tributary of the Rio Negro above Manaus).

Remarks

This species is externally similar to *C. bicolor* Castelnau (couplet 408/409 in Endrödi, 1985) except that the large foretarsal claw is finely split in *C.*

sarahae and broadly split in *C. bicolor*. The parameres are also vastly different; in fact, no known species of *Cyclocephala* has parameres even remotely resembling those of *C. sarahae*. *Cyclocephala sarahae* will key as far as couplet 404/405 in Endrödi (1985) which is *C. testacea* ab. *ovulum* Bates. *Cyclocephala testacea* ab. *ovulum* has much simpler parameres, has the basal tooth of the foretibia barely separated from the others, and is not distinctly bicoloured as in *C. sarahae*.

This new species was collected by a colleague, Larry Lacey, while we were both working for Brazil's National Institute for Amazonian Research (INPA). During a boat trip upriver by Lacey, periodic stops were made to spend the night, hence the imprecise locality information.

Etymology

I am pleased to name this species after my daughter, Sarah, who, even though she was not quite three years old at the time, nevertheless helped me to collect Amazonian insects during our stay in Brazil.

Cyclocephala sarpedon sp. n.

(figs. 7, 29-31)

Type material. – Holotype ♂, allotype ♀, and 13 paratypes labelled 'BRASIL: Rondonia, 62 km S. Ariquemes, Faz. Rancho Grande, 10° 32′ S, 62° 48′ W, XI-11-22-1991, B. C. Ratcliffe, collected at light.' Additional paratypes with same data (18) except collected by L. G. Bezark and D. E. Russell and BRASIL: Mato Grosso, Reserva Humboldt, 10° 11′ S, 59° 48′ W, 16-22-III-1977, B. C. Ratcliffe, collected at light (4); Venezuela: Aragua, Rancho Grande, 20-VII-1986, R. S. Miller colr. (1); Suriname, Raleigh Falls, 25-27-VII-75, Coll: D. Engleman, collected at lights (1). Holotype and allotype deposited at UNSM. Paratypes at CASC, MZSP, UCDC, UNSM, USNM, PKLC, DERC, LGBC, HAHC, MAMC, and BCRC .

Description

Male holotype (fig. 7). – Length 11.7 mm; width across humeri 5.0 mm. Colour testaceous with piceous tarsi and 3 small, black elytral spots (1 behind humerus, a larger, oblique, elongate spot mesad of that, and 1 in centre of elytron behind middle).

Head: Surface minutely alutaceous, moderately densely punctate; punctures small, becoming smaller and denser at clypeal apex. Clypeus with apex narrowly parabolic, reflexed. Interocular width 3.0 transverse eye diameters. Antenna with 10 segments, club subequal in length to segments 2-7.

Pronotum: Surface similar to that of frons except punctures slightly larger and sparser on disc. Base with marginal line. Prosternal process short, conical.

Elytra: Surface with moderately dense, large, very shallow punctures, double rows on disc barely evident; a few, short, pale setae present on apical half in barely discernible rows.

Pygidium: Surface roughened with moderately dense, short, reddish brown setae. In lateral view, surface convex.

Legs: Foretibia bidentate. Foretarsus expanded in size, claw bearing segment greatly enlarged at base on medial surface (fig. 29), larger claw with apex entire but bearing small tubercle subapically. Posterior tarsi about 1.8 times longer than posterior tibia. Meso- and metatibia with stout (not bristle-like) setae.

Parameres: figs. 30-31.

Female allotype. – Length 11.0 mm; width across humerus 4.8 mm. As holotype except in the following respects: Flared region of elytral margin black. Head: Punctures slightly larger and denser. Elytra: Lateral margin expanded just behind middle. Pygidium: Surface glabrous, less convex. Legs: Foretibia tridentate, basal tooth only a weak angulation, all teeth subequally spaced from one another.

Variation. – Males (13). Length 10.7-12.3 mm; width across humeri 4.8-5.2 mm. The paratypes are all similar to the holotype except that the size of the elytral spots varies slightly (1 example with spots nearly obsolete), and the Surinam specimen has the clypeal apex a little less narrowly rounded.

Females. (23). – Length 11.0-12.8 mm; width across humeri 4.8-5.5 mm. The female paratypes do not differ significantly from the allotype.

Distribution

Cyclocephala sarpedon is known from the lowland rain-forests of central Rondonia and northwestern Mato Grosso states in Brazil and from north-central Surinam and north-central Venezuela. All specimens were collected at lights.

Remarks

The specimens of the type series are remarkably consistent in expression of their character states. The narrowly parabolic clypeal apex, bidentate tibia, and the form of the male parameres are diagnostic for this species. It is very close in appearance to *C. schmitzorum*, but the size is generally smaller, the parameres differ in shape (usually difficult to see due to dense setae on the parameres), and the males have the fifth tarsomere greatly expanded at the base medially (fig. 29). Like *C. schmitzorum*, this species will key only so far as couplet 193 (196) in Endrödi (1985) where, after that, character states no longer fit.

Etymology

Named after Sarpedon, a son of Zeus and Europa and king of Lycia who was killed in the Trojan War ... and also because it was the very first epithet in a scientific name (*Graphium sarpedon*) that I learned as a boy. I've liked the *sound* of that word ever since.

Cyclocephala schmitzorum sp. n.
(figs. 8, 32-34)

Type material. – Holotype ♂, allotype ♀, and 5 paratypes labelled 'BRASIL: Rondonia, 62 km S. Ariquemes, Faz. Rancho Grande, 10° 32′ S, 62° 48′ W, XI-11-22-1991, B. C. Ratcliffe, collected at light.' Five additional paratypes with same data except collected by L. G. Bezark and D. E. Russell, and Brasil: Amazonas, Reserva Ducke, 26 km NE Manaus, 11-xi-1976, B. C. Ratcliffe (1); Suriname, Raleigh Falls, 25-27-vii-1975, Coll: D. Engleman (1). Holotype and allotype deposited at UNSM. Paratypes at USNM, CASC, DERC, and BCRC .

Description

Male holotype (fig. 8). – Length 13.1 mm; width across humeri 5.8 mm. Colour testaceous with piceous tarsi and small, black elytral spots (1 behind humerus, a smaller one mesad of that, and 1 in centre of elytron just behind middle).

Head: Surface minutely alutaceous, moderately densely punctate; punctures small, becoming smaller and denser at clypeal apex. Clypeus with apex narrowly parabolic, reflexed. Interocular width 3.0 transverse eye diameters. Antenna with 10 segments, club subequal in length to segments 2-7.

Pronotum: Surface similar in sculpturing to frons, punctures a little sparser on disc, becoming a little larger and denser in posterior angles. Base with complete marginal line. Prosternal process short, conical.

Elytra: Surface with moderately dense, large, shallow punctures, double rows on disc evident; 6 rows of setae present (1 sutural row, 2 rows on disc, 2 on side, 1 on lateral margin); setae short, stout (almost bristle-like), reddish brown, sparse.

Pygidium: Surface completely roughened, with moderately dense punctures; punctures small, setigerous; setae dense, long, reddish brown. In lateral view, surface weakly convex.

Legs: Foretibia bidentate. Foretarsus expanded in size (fig. 32), larger claw not split at apex. Posterior tarsi about 1.6 times longer than posterior tibia. Meso- and metatibia with bristle-like setae.

Parameres: figs. 33-34.

Female allotype. – Length 13.2 mm; width across humeri 6.0 mm. As holotype except in the following respects: Expanded region of elytral margin is black. Elytra: Only a few setae present in apical half, rows absent. Lateral margin dilated at level of first sternite with swollen tumosity on side just above margin. Pygidium: Surface glabrous. Legs: Foretibia tridentate, basal tooth only a weak angulation, all teeth subequally spaced from one another.

Variation. – Males (5). Length 11.2-13.2 mm; width across humeri 5.4-6.2 mm. The male paratypes do not differ significantly from the holotype. One specimen has the elytral setae reduced or abraded away on the anterior half.

Females (2). – Length 12.0-12.9 mm; width across humeri 5.8-6.0 mm. The female paratypes are similar to the allotype.

Distribution

Cyclocephala schmitzorum is known from primary lowland rainforests in central Rondonia and by a single specimen each from near Manaus, Brazil and north central Surinam. All specimens were taken at lights.

Remarks

Although apparently subject to some abrasion, the presence of almost bristle-like setae in rows on the elytra in combination with the narrowly parabolic clypeal apex, bidentate tibia in the male, and form of the parameres will distinguish this species. It is very close in overall appearance to *C. sarpedon*, but the size is slightly larger, the parameres differ (often difficult to see due to the dense pilosity on the parameres), and the enlarged claw joint in the males is not flared at the base (fig. 32). If the elytral surface is considered setose (couplet 183/174 in Endrödi 1985), then it will key to couplet 193 (196) and no further.

Etymology

I take great pleasure in naming this species after Harald, Barbara, Tomás, Uta, and Aike Schmitz of the Fazenda Rancho Grande in Rondonia, Brazil. Their efforts to preserve rainforest habitat and to encourage entomological explorations on their ranch not only brought to light this new species but also serves as a shining example of benevolent stewardship of tropical biota.

ACKNOWLEDGEMENTS

For the loan and/or gift of specimens I thank Jorge Arias (Brasilia, Brazil), Dodge Engleman (Margarita, Panama), Steve Heydon (University of California at Davis), Larry Bezark (Sacramento, CA), David Russell (Davis, CA), and Paul Lago (University of Mississippi). David Myers (Weeping Water, NE) and the University of Nebraska Foundation are gratefully acknowledged for making available travel funds to Brazil in 1991. I am deeply appreciative of the efforts of Thomas Emmel (University of Florida) for coordinating the 1991 Brazil trip. For their warm hospitality and fine efforts to promote rainforest conservation in Rondonia, I thank Harald, Barbara, Tomás, and Uta Schmitz of the Fazenda Rancho Grande. Laura Williams, Gail Littrell, and Charles Messenger (all University of Nebraska) are acknowledged for their line drawings, word processing, and photographic assistance, respectively.

RESUMO

Nove novas especies de *Cyclocephala* do Brasil são descritas. Estas são *C. amplitarsis*, *C. rondoniana*, *C. sarpedon*, e *C. schmitzorum* da Rondônia; *C. deltoides* do Pará; e *C. iani*, *C. nodanotherwon*, *C. pseudoconfusa*, e *C. sarahae* do Amazonas. Novos registros no Brasil são *C. boulardi* Dechambre, *C. guianae* Endrödi, *C. longa* Endrödi, *C. munda* Kirsch, *C. ocellata* Burmeister, e *C. picipes* (Olivier). Finalmente, a fêmea de *C. panthera* Dechambre é relatada pela primeira vez e caracterizada brevemente.

REFERENCES

Anderson, A. B., G. T. Prance, & B. W. P. de Albuquerque, 1975. Estudos sobre a vegetação das Campinas Amazonicas-III. – Acta Amazonica 5: 225-246.

Arnett, R. H. Jr. & G. A. Samuelson, 1986. The insect and spider collections of the world. – E. J. Brill/Flora and Fauna Pubs., Gainesville. 220 pp.

Dechambre, R.-P., 1979. Missiones entomologiques en Guyane et au Brésil (*) [Coleoptera Dynastidae]. – Revue Française d'Entomologie (N. S.) 1: 160-168.

Dechambre, R.-P., 1980. Six nouvelles espèces de *Cyclocephala* [Coleoptera, Dynastidae]. – Revue Française d'Entomologie (N. S.) 2: 42-49.

Dechambre, R.-P., 1992. Nouveaux Cyclocephalini des genres *Cyclocephala* et *Aspidolea* (Col. Dynastidae). – *In*: Lachaume, G., Les coléoptères du monde, vol. 14, Dynastidae américains. Sciences Nat., Venette, France.

Endrödi, S., 1963. Neue *Cyclocephala*-Arten. – Annales Historico-Naturales Musei Nationalis Hungarici 55: 323-333.

Endrödi, S., 1985. The Dynastinae of the world. – Dr. W. Junk Publishers, Dordrecht. 800 pp.

Received: 7 May 1992
Accepted: 10 August 1992